

Caldwell (6)

THOUGHTS

ON THE

Box 2

EFFECTS OF AGE

ON THE

HUMAN CONSTITUTION.

A SPECIAL INTRODUCTORY.

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BY CHARLES CALDWELL, M. D.

LOUISVILLE:  
JOHN C. NOBLE, PRINTER.  
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## CORRESPONDENCE.

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### University of Louisville,

MEDICAL DEPARTMENT, Dec. 5, 1846.

DEAR SIR: The Medical Class of the University of Louisville, impressed with the signal ability of your Lecture on Old Age, have appointed us a committee to request of you a copy of it for publication. Allow us to add our individual wishes to those of the Class which we have the honor to convey, and to assure you that we are with sentiments of profound regard:

Yours, most truly,

W. A. CANTRELL,  
WM. CROMWELL,  
J. M. LAWRENCE,  
A. D. CLEMENT,  
G. W. McMILLIN.

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### University of Louisville,

MEDICAL DEPARTMENT, Dec. 5, 1846.

GENTLEMEN OF THE COMMITTEE: In reply to your polite and complimentary note of this date, respecting my late lecture on the "Effects of Age on the Human Constitution," allow me to repeat what I said, in substance, in relation to my general Introductory Lecture.

It was prepared and delivered by me without an expectation or a wish to see it in print. Under these circumstances it was composed hastily, but comparatively little attention being given to its style and manner. The arrangement and argument of it are deemed less exceptionable; and its matter is believed to be perfectly sound. Such as it is, however, it is cheerfully surrendered to the request of the class.

Tendering to you, therefore, as the organ of that request, my cordial acknowledgments, for your polished courtesy, in the discharge of the duty devolved on you, I am, with sentiments of high and sincere regard, gentlemen,

Your friend, and obedient servant,

CH. CALDWELL.



## THOUGHTS, &c.

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THE current hypothesis on the subject is, that the *vital condition* is of necessity a source of *perpetual action* and therefore of *perpetual change* in living organized matter. In this hypothesis, for reasons which I believe to be substantial, I do not concur.

The vital condition is not only *divisible*; it is actually *divided*, by nature herself, into *two forms*—a *latent* or *dormant*, and an *overt* or *active* one. Of these, the former shows itself in vegetables, especially in their *seeds*, and in multitudes of species of the lower orders of animals, when in a state of hybernation. It is a well known fact, that many of these forms of living matter have continued in a condition of *dormant vitality* for hundreds and thousands of years. And to prove that they positively *were* in that condition, they have been subsequently awakened to *active* vitality, by suitable stimulation. There are now *peas* and *wheat*, in certain parts of Europe, the product of seeds discovered in Herculaneum, where they had lain dormant for nearly *two thousand*, and in the catacombs of Egypt, where they had lain in a like condition, upward of *three thousand* years. And, had those seeds not been in a *vital* condition, during this protracted period, I need hardly add, that they could not have been roused into *overt* life, by *any* kind, or *all* kinds of stimulation that could have been employed for the purpose. Even an *attempt* to stimulate *dead matter* would involve an absurdity. Nor, had they not been held together by the *vital principle*, would they have retained their form a twentieth part of the time that they *slept in their dormitories*.

To dormant vitality the higher orders of animals are not subject. Man therefore, who stands at the head of the animal kingdom, and of whose constitutional changes I am about to speak, is entirely free



from it. To him, to all birds, and to nearly all quadrupeds, *active vitality* alone belongs.

From its commencement to its close, then, the life of man exhibits an unbroken chain of ceaseless action and ceaseless change. And though the *progress of years*, which constitutes AGE, is not the only cause of the succession of changes, which thus present themselves; it is the cause of the most striking, important, and permanent of them.

By AGE, I mean, on the present occasion, as just intimated, the number of years, during which an individual has lived. Such however is not the only interpretation which the term receives. Many, if not most medical writers, who have treated of the subject, include under it only that portion of time, which elapses between the *commencement* of the *decline of life*, and its extinction by the natural influence of years.

To these preliminary observations I shall only add, that, my remarks on age shall relate to mental manifestations and actions, no less than to corporeal ones. They shall embrace in fact the attributes of the entire man, consisting, as he does of *mind* and *matter*, each of those substances being alike essential to his *being*, *capabilities*, and *rank in creation*—and the one of them being, *in the place it occupies*, as worthy as the other, of HIM who called it into existence and assigned to it its sphere.

Between the *mental* and the *material* substances however of man, there exists, as respects the influence of age on them, a radical and most important difference, which seldom receives the attention it deserves. The *former*, (as I feel persuaded) *never changes*, while the *latter* changes *during life*, like a *perpetual motion*. There is reason to believe (as far as belief is predicable in relation to the subject) that, in the same individual, the mind or spirit of the *infant*, the mature adult, and the *centenarian* is *identical*. No doctrine other than this is compatible with the creed of *mental immortality*. But of the body, in all its elements, the reverse is true. With it, every instant is an instant of change.

Is the question ready to be proposed to me, by any one, if the human mind be always the same, wherefore do its actions so signally change? Why are they, in the same person, at one time feeble, timid, and entirely inefficient?—at another moderate in those respects?—and, at a third, bold, daring, and eminently powerful? To this interrogatory the answer is plain, and may be easily rendered. The reason of these changes in mental manifestations does not consist in



any alteration in the mind or spirit itself; but in an alteration in the body, the instrument on and by which alone the mind operates *in all* sublunary concerns—and without which it can no more operate, in our present state of being, than the body can without the aid of its animating principle. For it is a truth, which no enlightened physiologist will deny or hold doubtful, that, other things being the same, man is what the organization of his body makes him. Is his organization in all respects sound and healthy? So is the man. Is it defective? So is he. Is it of the highest order and excellence? So are his manifestations, performances, and character.

Nor, as relates to most parts of the body, does any one pretend to question the correctness of this representation. Is an individual well proportioned in person? are his bones, tendons, and muscles large, well-organized and compact? and is he in health, and in the prime of manhood? He is regarded as a model of activity and strength. Nor are similar remarks respecting the nervous system, including the brain, less strictly true. Is the intellectual compartment of the brain large, healthy, and well organized? the intellectual powers are correspondingly strong. Is the moral compartment of large size and faultless organization? the moral faculties are of a high order. Is the animal compartment large, well organized, and in good tone? the animal faculties correspond in strength? Are the three compartments, the intellectual, the moral, and the animal, all large and well organized, constituting a large, well proportioned, and well organized brain? The entire mental character of the possessor is of a rank corresponding in elevation and power.

In proof of *each* of these allegations it would be easy for me to adduce authentic facts. But I shall speak at present in proof of only the *last* of them. The vast mental scope and strength of Pericles, Lord Bacon, Henry IV., Shakspeare, Mirabeau, and Franklin, were as clearly foretokened by the size and form of their heads, as were the personal strength and activity of Alcibiades, Milo, Crichton, or St. John—or of Hector, Achilles, or even Hercules himself, by the size, figure and muscular tension of their bodies and limbs.

Once more. Are the voluntary nerves of any animal, or of any portion of its body numerous and large? The voluntary power of that animal, or of that portion of it is great. This, as I could easily show, had I time to analyze the subject, is abundantly proved by the whole system of the wild-cat, and the catamount, and by the tail of the kangaroo, and the trunk of the elephant.

Are the nerves of sense in any organ of any animal unusually large? The sensibility of that organ is unusually keen. This allegation is proved by the immense scope and piercingness of the sight of the eagle, whose visual nerve is correspondingly large; by the uncommonly vivid sense of hearing of the long-eared bat, whose auditory nerve is of inordinate size; and by the uncommonly large volume of the sensitive nerves which supply the human hand, where the sense of touch is most fully developed and most intensely concentrated.

If then it be true (and no accomplished physiologist will deny it) that man is precisely what his organization makes him, the most philosophical and decisive scheme to develop the effect of age on him is, in its nature, sufficiently plain and simple. It is to demonstrate his organization, including structure, form, size, and tone, at different periods of his life; especially at what may be termed its **CARDINAL PERIODS**. And that is the scheme which, (in a very limited degree however) it is my purpose to pursue. The degree will be limited, because it would be impossible to make it full, in a discourse of a reasonable and admissible compass.

The life of man consists of a number of natural epochs, each of which is sufficiently well marked and defined, and the periods between most of which are of a given but not of a uniform or identical extent. During each of those periods the organization of the system and its concomitant phenomena, both mental and corporeal, are different from those of every other period. And these are what constitute the natural varieties and characteristics of age.

The *first* period, between one epoch and another, may be called the *uterine*, and extends from *conception* to *birth*.

The *second* period extends from the close of the first to the completion of the first set of teeth, which occurs about the end of the second, or the middle of the third year of life. These teeth are *deciduous*, and, in common family parlance, are called "milk teeth."

The *third* period extends from the end of the second to the time of the loss of the first set of teeth, and the appearance of the second or permanent set—about the seventh year of life. The second and third of these periods united, and reaching from birth to the completion of the seventh year, are called **INFANCY**.

The *fourth* period extends, in the female, from the seventh to the thirteenth or fourteenth, and, in the male, from the same age, to the fifteenth or sixteenth year of life. The whole term of this period is called *puerility*, *childhood*, or *boyhood*; and to the termination of it is

given the name of PUBERTY. And that termination is the most striking and interesting epoch of life. It is the *day-dawn* of what becomes the *meridian* of man, and confers on him the fitness to perpetuate his race. Some of the most important characteristics of it will be specified hereafter.

The *fifth* period extends, in the female, to her nineteenth or twentieth year, and terminates in *young womanhood*, and in the male to his *twenty-fourth* or *fifth* year, and ends in *young manhood*. The familiar name of this period is *youth* or *juvenility*.

The *sixth* period is termed the PRIME OF LIFE. It is also called MATURE *womanhood*, and *virility* or *mature manhood*. And it is a long period, extending, in the female, to the forty-first or second year of her life, and, in the male to his forty-fifth or sixth year. This period is divided, perhaps not improperly, by certain physiologists, especially of Germany, into "*crescent*" and "*confirmed*" *womanhood* in the female, and *virility* in the male. The first division extends in the female to her *thirtieth*, and the second to her *fortieth* or *forty-first* year. In the male the first extends to his *thirty-fifth*, and the second to his *forty-fifth* year.

To these periods nature has affixed her own limits, and, on the score of duration, placed them beyond the control of man. By no human means can they be materially shortened or lengthened.

On this topic I shall, at present, offer a single remark, which will be amplified in a subsequent part of my lectures.

Notwithstanding all that has been said, for ages past, and is still said, and accredited, respecting the early occurrence of puberty in the female in hot climates, compared to its occurrence in temperate and cold ones, the difference between the ages at which that event takes place within different zones, and under different temperatures is far from coinciding with common report and belief on the subject. In proof of this, *menstruation* in woman commences every where at *nearly the same age*—in Bengal, Arabia, the south of China, England, France, Germany, and elsewhere under different latitudes and temperatures, within a year at farthest (usually I believe within less) of the same time of life. As the result of the most extensive and satisfactory investigations of the subject, the age of FOURTEEN may be assumed as an average sufficiently correct.

The *seventh* period is also a long one, and is called "*decrecent*" *virility*, or the *decline of life*. It extends in man to the sixty-fifth or

seventieth year. Its extent *in woman* I shall not make a subject of consideration. It is sufficient for me to observe, that when her menstrual period has closed, without injury to her health (a desideratum toward the procurement of which much may be done by herself) her chance for the enjoyment of a green old age, and the attainment of longevity is far more promising than that of the male. Over this period, as will hereafter appear, man holds a much stronger control, to lengthen or shorten it, than over either of the others.

The EIGHTH period includes *confirmed senility*, or *real old age*. It reaches to the termination of life, and is marked, from its commencement, by more or less *infirmity*—and, should it be sufficiently extended, by helpless *decrepitude*.

Before attempting, by a particular analysis, to represent the special changes which characterize any of the foregoing periods in the life of man, I shall advert to one which is common to the whole of them; and is constant in its progress. It is that of *desiccation* and hardening or solidification of the whole body, or a diminution of the humidity of the body, in proportion to the amount of its solid matter. In every portion of the system this process of drying goes regularly on, from the commencement of life *in utero*, and even *in ovo*, to its extinction in old age. And it is the only change that is thus regular and uniform. All the others are marked by diminutions, interruptions, and other irregularities. Of the circulation of the blood, which is also a common process, this is as true as it is of functions less important. At times, even when the action of the heart is the same, the blood flows to given parts of the body, in much greater abundance than it does at other times. In the progress of growth this is and must be more especially the case. The organ which is increasing in size receives of necessity a superabundant amount of blood. The same is true of every gland, as often as its secretory action is unusually vigorous. This inequality of circulation satisfactorily proves that the motion of the blood is not controlled exclusively by the action of the heart. The equability of circulation is greatly interrupted by passions and emotions—love—joy—anger—fear—shame. But the process of desiccation, I say, suffers no interruption from the commencement to the close of life.

Hence the human body *begins its being*, supplied with too much humidity for perfect organization, and ends it with too little. One cause of the high condition and efficiency of man in the *meridian* of life is, that his fluids and solids are duly balanced, and in a state of



harmonious adaptation to each other, and to the whole system. For such adaptation is essential to pre-eminence of organization; and that is essential to pre-eminence of action and power.

At the commencement of their *uterine* period the elements of the future man can hardly be said to possess either real solids or real organization. The *germinal vesicle* and the *embryonic cell*, together with all that immediately surrounds them, are nothing but specks of mucus or gelatin, without any shape that can be called *significant*—significant I mean of the figure and character of the being they are to produce. But they are *living* gelatin, and possess a plastic power which it would be hardly extravagant to denominate *marvellous*. It is certainly one of the most singular and striking that is in any case exercised by living matter. It is to this effect.

The elements of the embryos of all kinds of animals are precisely alike. At least they resemble each other so accurately, that the ablest minute anatomist and observer, armed with the best microscope ever constructed, cannot distinguish one of them from another. The germinal elements of the fish, the reptile, the bird, the quadruped,—and even of man, appear to be *identical* in form and composition, and nearly so in size. Yet do they, in the progress of their development, put on each its generic and specific form, and exhibit its corresponding instinct and qualities. The fish swims, and lives and acts conformably—the reptile crawls—the bird flies—the quadruped walks, runs, and leaps—and man stands erect, with his “*os sublime*,” and manifests the superior attributes of his superior organization. Of vegetables the same is true. Their germinal elements appear to be *identical*. Yet do they put forth in time products marked by that infinite diversity of shape, size, color, taste, and smell which characterizes the countless hosts of the vegetable kingdom.

Of the two next periods I shall speak under the same head; because they have in them nothing of actual novelty and mutual diversity. The qualities which give character to them, except as relates to *greater maturity*, *zeal*, and *strength* are the same; and the changes which occur in them are also from a lower to a higher degree of organization and its effects on mind and body. The process of solidification in them is gradually advancing.

At birth the amount of *liquid* compared to that of solid matter, in the entire system of the infant, greatly superabounds; and the condition of organization and its influences are of a cast correspondingly low. Of its brain no portion exhibits real organization, as indicated

by fibrous structure, except that which governs the most inferior of the animal functions—those functions I mean which pertain to mere subsistence—such as *respiration, deglutition, digestion, secretion, and excretion*. The other portions of the brain are in an unorganized and pulpy condition. From defect of organization, even the external senses are imperfect.

But, if the infant be healthy and well supplied with food, that defect disappears with great rapidity. The cerebral organs of the *animal affections* soon become fibrous and capable of action; and a like change occurs in the *knowing or inferior intellectual organs*—those I mean of *observation and perception*. The faculties brought into action, by this latter development, are those which open an intercourse between man and the *external world*—those which convey to him a knowledge of the objects around him, together with a knowledge of their most obvious qualities and actions. And that is the kind of knowledge, in the collection of which, from nature and from books, the mind is chiefly engaged during the two periods I am now considering; and which, as heretofore mentioned, include the terms of *infancy and childhood*. Being somewhat of a novelty to them, moreover, such knowledge is sought after by them with great avidity, and attained with a corresponding degree of speed. For, though not yet powerful, the knowing organs are, during the latter years of infancy, and throughout the whole of childhood, exceedingly active. The reflective faculties have not yet begun to act, because the portion of the brain which constitutes their seat and instrument is not yet sufficiently developed and organized.

At puberty, which begins when childhood ends, a new growth and organization take place, as heretofore intimated, on a scale both extensive and highly important. They consist in the development of the *reflective and moral* organs of the brain, with that of the external organs of generation and of that portion of the brain which governs them. I need hardly observe, that some of the faculties which belong to the organs just specified are of the highest order, and all of them of great strength and influence. They produce in the characters of the two sexes therefore conformable changes, fitting the male, by boldness, enterprise and intelligence, for the extensive scheme of out-door duties which lies before him, and the female by those milder and more delicate, and, though feebler, not less important attributes, which adapt her to the sphere of domestic life.

It is now that man, provided his recent developments and organi-

zation be of an elevated order, becomes instinctively, and, in the true sense of the phrase, a *moral being*; and that his intellect becomes capable of perceiving and comprehending those higher relations of things, the knowledge of which constitutes science in him who possesses it, and its promulgation through the press *recorded science*.

Another very important augmentation in developement, which takes place at puberty, is that of the thorax and of the organs it contains. Those organs are the lungs, the heart, and the large blood-vessels. Of these, the office of the former is to mature and vitallize the blood, and of the two latter to give it circulation through every part of the body. One of the consequences, therefore, of their augmentation in size and vigor is, that every portion of the system receives, in a given time, a larger supply of better matured and more richly vivified blood. Of this supply again the necessary result is, a higher efficiency in the performance of every function whether bodily or mental. Hence an expanded chest and its usual accompaniments form an attribute important in its contribution to the production of greatness in all the loftier qualities of our nature.

Man is now in adolescence or youth, one of the most interesting periods of his life. He is complete moreover in all his developments, as respects their number—but not *as* respects their *extent* and *organization*. They are yet to be increased in the *former*, and rendered in the latter more ripe and perfect. The youthful system contains as yet an excess of fluid, which mars its organization, and withholds from all the functions it performs, both bodily and mental, a portion of their vigor and perfection. But that defect is daily diminishing by the growth of the body, in which the fluids are converted into solids, in such proportion as to diminish their ratio.

During the whole of this period, which terminates in young manhood, the body is increasing in size, and improving in organization, solidity, and strength. The faculties, being also, of course, augmented in power, perform their functions with greater efficiency and superior effect. The entire period is therefore a time of bodily and mental improvement; and the changes in that respect are constant and striking.

Respecting the anterior part of the next period, as already stated, which is a long one, (reaching in the male, to his forty-fifth year, under the name of *mature virility*) the same is true. That portion, which extends to his thirty-fifth year, is also a time of uninterrupted improvement in the firmness, solidity and tone of his organization.



and in their effects on his faculties. With sufficient propriety therefore it has been called "*crescent*," manhood.

There is reason to believe that the organization of the body, and all the qualities of the several faculties both corporeal and mental, together with the functions of those faculties, are now at the zenith of their *native* perfection. Any improvement they may afterwards attain is the *fruit of cultivation*.

During the remainder of this period, which reaches to his forty-fifth year, and might with sufficient propriety be called *stationary virility*, man sustains *necessarily* from the hand of nature, no material change in the faculties of either his mind or his body. Though time rolls steadily on, yet, from year to year, neither do others perceive nor himself feel any alteration in them until about the epoch I have already mentioned. And then commences his period of decline. Having reached the mid-day of his life, and basked for a time in the enjoyment of its sunlight, he must now descend, through its afternoon and evening, to its night in the grave.

It need hardly be mentioned that the period of man's life, extending, as I have stated, from his twenty-fifth to his forty-fifth year, constitutes his chief season of business, enterprise, and action, on an extensive, and often on a difficult and perilous scale. And, if it be his lot to engage in such efforts at all, it is the most suitable season. Beside the fact, that his feelings render him then most prone to scenes of adventure and peril, his intellect is most inventive and fruitful, and therefore most capable of devising plans of safety and success, and his person most tolerant of exposure and hardship. Such are the uniformly wise and felicitous aptitudes that characterize all the operations of nature!

I have thus accompanied man in his passage through the different stages or periods of his life, until his arrival at that of his irrevocable decline. And I regret to say that I have passed through the last in which it is not *painful* to accompany him—because it is the last in which he is comfortable in himself, useful to others, or an ornament to his race. The period that follows his decadence is that which includes unmitigated old-age. And, though I may not apply to it any harsh or repulsive epithets, neither can I speak of it in soothing or attractive ones. However unacceptable and even revolting the sketches may be, it is depicted graphically and in character in the two following quotations :

"In life's last scene what prodigies surprise!  
 "Tears of the brave and follies of the wise.  
 "From Marborough's eyes the streams of *dotage* flow;  
 "And Swift expires a *driveller* and a *show!*"

"His (the centenarian's) youthful hose, well saved, a world too wide  
 "For his shrunk shanks; and his big manly voice,  
 "Turning again toward childish treble, pipes  
 "And whistles in his sound. Last scene of all,  
 "That ends this strange eventful history,  
 "Is second *childishness* and mere *oblivion*,  
 "Sans teeth, sans eyes, sans taste, sans every thing."

It is not however of the actual old age of man that I am now to speak, but of his decline from his meridian, and consequently of his gradual *approach towards* it. It is that in which the solids having gained the ascendancy over the fluids, in many parts of his system a perceptible degree of rigidity begins to prevail. Nor, when properly considered, does any other period of his life furnish a more useful and important theme of discussion. In truth from neither of the others can so much moral information of a practical and therefore profitable character be derived.

I have already observed, that the duration of all the other periods of man's life, which precede that of decadence, is fixed by nature and cannot therefore, by human means, be either lengthened or shortened. The period from conception to birth is limited to *nine months*. The deciduous teeth appear and have their growth completed at a given period—so do the permanent teeth—so does puberty. The same is true of young manhood—of mature manhood—and of what I have denominated *stationary* manhood. No influence or operation but that of nature can control their limits. But, as respects the period of *decline*, the case is different. Each man that enters it is so far master of it that he can either protract or curtail it to an important extent. Nor can a doubt be entertained that a knowledge of the means by which that end can be accomplished, may be rendered eminently subservient alike to individual comfort and to public good. Let it be distinctly understood however, that in alleging that man is so far master of his fate, as to be able to retard very materially the progress of his decline, my allusion is confined much more to his mental than to his corporeal powers. Yet to no small extent it embraces both. Though I do not contend that the man of fifty can, as the result of any conservative course within his reach, be as buoyant and elastic in muscular action, as the man of twenty-

five or thirty; yet do I confidently contend, that he can be much more so than he usually is. Nor do I allege that some of the more *showy* and *attractive* qualities of his mind (especially his sentiments of *beauty* and *sublimity*) can be *entirely* preserved from the action and deteriorating influence of time. But *their* decay also can be rendered, by judicious care, much slower, in its progress, than it would be were they unskilfully treated or wholly neglected. And the mental faculties of a more solid and useful character can be preserved from any *perceptible loss of strength* for many years. Somewhat less easily excited they *may* be; but *when* excited no less powerful and efficient in action. All this I know *can* be done; because I have frequently witnessed its accomplishment. And the mode of doing it is so plain and simple, that no one who seriously attempts it, and perseveres in his attempt, can fail to be successful. It consists in three observances—strict temperance in *all things*, very especially *diet* and *drink*—moderate exercise of person in the open air—and mental industry carried to a suitable extent, and judiciously bestowed on suitable subjects. Barring fits of sickness, and injurious accidents, which may occur at any period of life, a course of this sort skilfully managed, and perseveringly pursued, will as certainly secure to man competency of both body and mind to the performance of not only common, but even of high and important duties, from the age of forty-five to that of *seventy*, as any other causes, whether physical or moral, will produce their natural and appropriate effects. This moreover it will do in men of common constitutions; while, in those of a higher order of constitution, it will render their decline capable of vigorous and efficient action to a much more advanced age—not unfrequently to their eightieth, and in many cases to their *eighty-fifth* year.

Shall I be told that the instances of green and elastic old age to which I have referred are nothing but exceptions to the general rule? And that the age of *sixty-five* is the goal irrevocably established by nature herself, where *mere decadence* necessarily terminates, and *old age*, with its concomitant infirmities begins?

My reply is (and it is given with confidence) that the allegation is groundless. Nature has established no such boundary-point. Its erection is the unauthorised work of superstitious man. When temperance, bodily exercise, and mental industry are practised in the manner, and to the extent just recommended, infirm old age, *does not commence at sixty-five*. Nor does it commence with any great depth

of discomfort at *seventy*. Not until the age of *seventy-five* or *eighty* does a strongly marked degree of it make its appearance.

The notion that the faculties of mind and body are nearly extinguished at the age of *sixty-five* arose, during an age of ignorance, from a superstitious belief in the *magical power* of *odd* numbers and their *multiples*, especially when the multiples are *complex*. Thus nine is a multiple of three, and *sixty-three* is a multiple of nine. Hence, by the ancients, and by the moderns in times of superstitious darkness, the *sixty-third* year of life was regarded as man's "*grand climacteric*," at which his constitution *necessarily begins* to give way, and becomes a *wreck*, by his *sixty-fifth*. And even now, during this era, when philosophy and common sense should be high in the ascendant, superstition still clings to that antiquated error, in defiance of the dictate of observation and experience. I challenge the world to adduce a single instance, in which a man of a sound constitution, competent, at the age of *fifty-five*, to high or even moderate achievements of mind and body, has ever lost that competency, and, through the influence of *time alone*, become an imbecile and a dotard, by his *sixty-fifth* year. Nor will my challenge be accepted. Yet can I, from my own knowledge of men, adduce perhaps one hundred instances, in which, by persevering in a suitable course of life, individuals have retained their faculties, in a condition prepared for high and useful action, until near the age of *eighty*—and not a few of them until a more advanced period. In cases of the kind (some of them highly illustrious) our own country sufficiently abounds. The chair of the chief magistracy of the United States has been occupied by ten incumbents. And of those, no less than *five* have verified the position for which I am contending. It need hardly be said that my allusion is to John Adams, Thomas Jefferson, James Madison, John Q. Adams, and Andrew Jackson. Of the four first of these it is well known that they retained (the latter of the four still retains) much more mental strength and efficiency than falls to the lot of most men, until after their *eightieth*—one of them until his *ninetieth* year—and of the *last* of the *five*, that he did the same until many years after his *seventieth*. And the Honorable chancellor Kent, who, by an unwise provision in the constitution of the State of New York, was dismissed from office, at the age of *sixty-five*, merely *because he was sixty-five*, has, since that period, made more profound and comprehensive manifestations of intellect than he had ever done previously.

In truth I know of no mistake deliberately committed by enlightened



and reflecting men, which bespeaks a more striking want of a correct knowledge of human nature, than that which proclaims man to be necessarily superannuated at the age of *sixty-five*. I confidently repeat, that no instance can be cited, either now existing or *recorded* in history, in which (the individual being even moderately sound in constitution, temperate in his regimen, and active in his habits of mind and body,) actual *superannuity* has occurred by the age of sixty-five. No, nor, I say again, by the age of *seventy*, except through the fault of the person himself. And the fault may be committed in several ways.

Of these ways the most frequent in its occurrence and fruitful in its result, is *indolence* and *inaction* of body and mind. But inaction of *mind* is but another name for *inaction of the brain*, a portion of the material system. And, at whatever period of life such inaction may be allowed to take place, the organ in which it occurs, is as certainly lowered in tone, diminished in size, and therefore reduced in strength by it, as it would be were it a muscle, or a nerve. But, that both nerves and muscles are thus reduced in size, activity and power, by remaining long in a state of rest, is a truth familiarly known to every physiologist who has bestowed on the subject the attention it deserves. And, from whatever cause it may arise, that some degree of proneness to inaction invades most persons in the commencement of the decline of life cannot be denied. Nor is it less certain that, in case that proneness be indulged, the work of mischief is done. The brain is impaired in its fitness to be the organ of the mind. And of course the mental action is also impaired, as indubitably as is the music of the violinist, by the decay of elasticity in the strings of his instrument.

But you are told, by an inspired writer, that if you resist the Devil he will fly from you. And the assertion is true; because the Devil referred to is nothing but an *obliquity* in your own disposition, which, by resolution, firmness, and steady perseverance, you can certainly remove.

As respects the propensity to inaction, which makes its insidious visit at the commencement of the decline of life, the same is true. It is a weakness which by temperance and determined resistance may be vanquished and banished. I embrace temperance among the means of escaping or rather of repelling it; because it comes on after a *copious* meal, much more readily, frequently and forcibly than at any other time. As a means of resistance therefore, strict and uniform temperance should never be neglected. Nor, in this as well as

in other cases, is temperance in eating and in the *indulgence of passion* less essential than temperance in drinking. For, notwithstanding the extensive mischief done by the intemperate use of intoxicating drink, and the well-designed efforts made to suppress it, I have long been inclined to believe, and still believe, that, whatever may be the case, in other countries where food is less abundant and therefore more expensive, in the United States the aggregate of evil produced by *over-eating*—in plainer language, by *gluttony*—is greater than that produced by drunkenness. A greater amount, I venture to say, of sickness and death is the annual product of the former than of the latter. My reason for this opinion is easily told. The ratio of drunkards in our country is small. But we are a *nation of gluttons*. The population of the United States, amounting to upward of twenty millions, consumes, in a given time, much more food (and food much more stimulating and difficult of digestion, and therefore calculated to over-work the stomach, and exhaust its powers) than the population of France, which consists of more than thirty millions. Thousands of *children* especially are annually destroyed in the United States, by not only being permitted to eat to excess, but by being actually enticed to the gross and pernicious practice.

It has been contended by several physicians of the Brunonian sect (and Dr. Rush was one of them) that none but men of very active minds attain to a high degree of longevity. This is a mistake. Dull-minded men in great numbers have lived until a very advanced age. In proof of this, the State of North Carolina contains more centenarians of the African than of the Caucasian race. And the former are proverbially dull of intellect. But it is true that none but men of active minds retain the strength and efficiency of their mental faculties to a very advanced period of life. The reason is plain. The strength of the mental faculties of such men has continued to such an age, not because those faculties possessed, in the early and middle stages of life, an uncommon degree of activity; but because they were kept, *by the power of the will*, unusually active during the period of decline. This is true of every man I have known in person, and of every one with whose special history I am acquainted, who retained high mental competency until an age unusually advanced. Except during their hours of sleep, which rarely exceeded *six* hours, and fell in many instances short of that number, their intellects were in a state of perpetual action.

This was true of Washington, who died at the age of *sixty-eight*,

while his intellect, which had rarely if ever, experienced an idle hour, is proved by his writings to have possessed its meridian clearness and strength. It was true of the five illustrious personages, whose names I have heretofore mentioned. I allude to Adams the elder, Jefferson, Madison, Jackson, and Kent. It was true of Dr. Rush, Dr. Priestly, Dr. Cooper, and the late Stephen Duponceau; and it is true at present of John Quincy Adams beyond perhaps any other man of the day. Of each of the personages just named I am authorized to speak confidently, because it has been my lot to be acquainted with them all, and to have a correct knowledge of their habits during the decline of their lives. And to the number I may add Dr. Shippen, who delivered, after his seventieth year, some of the ablest and most instructive lectures I ever heard from his chair, And Cuvier, whom I also knew, and whose mind during his whole life was a perpetual motion, died in the blaze of his intellectual fame, at the age I think of about *sixty-seven* or *sixty-eight*. The Abbe Correa, known by the *sobriquet* of the "LEARNED PORTUGUESE," one of the most ceaseless inquirers and thinkers I ever knew, died at the age of *seventy-three* or *four*, his mental faculties manifesting the activity and strength of *forty-five*. And the celebrated traveller Humboldt, who has not spent an idle hour for more than half a century, is I believe still living, at the age of *eighty*, possessed of undecayed powers of intellect.

Of the names of men, not personally known to me, but whose lives stand on authentic record, who preserved from decay, by the constant exercise of them, their mental faculties, until a deep old age, I could enumerate a host. But a few will be sufficient.

The mind of Franklin retained its wonderful compass, activity, and strength until after his eightieth year. Some of the compositions *dictated* by him but a few days before his death, when too weak to employ his pen, lack but little of the freshness and vigor which characterize the productions of his earlier years.

Raleigh was executed at the age of nearly eighty, his faculties strong, active, and undimmed. Cullen was a splendid lecturer, in the medical school of Edinburgh, at the age of *eighty-three*—and Monroe the elder was the same at about the same age. Boerhaave, when more than seventy years old, attracted to his lectures crowds of pupils from all parts of Europe, and Blumenbach did the same when from eighty-three to eighty-five. Dr. Johnson, when upwards of seventy, wrote the "Lives of the Poets," decidedly the ablest production of his pen. The late venerable Professor Hufeland, when eighty



and upward, was deservedly the pride of his profession in Berlin, a city inferior to Paris only (if inferior to any place) in science and letters. Voltaire, at the age of eighty-two or three, possessed the mental vivacity and vigor of youth—and at the same age the late Prince Talleyrand was one of the ablest diplomatists of the time.

A case more triumphantly perhaps corroborative of the doctrine I am urging, than any other that can be cited, is that of Lewis Cornaro of Venice. Not only did his strict and well-directed *temperance in all things*, united to suitable exercise of his *body* and *mind*, preserve unimpaired the health, activity, and vigor of *both*, for upward of sixty years; it restored to them, in their possessor's fortieth year, those blessings, after they had been shattered beyond all reasonable hope of remedy, by a previous career of intemperance and dissipation.

That noble Venetian died, as his biographer tells us, "at the age of more than *a hundred years*, without agony, in an elbow chair."

He bequeathed to the world three brief treatises *on health*, written by himself, at three different and far advanced periods of life. The first of them came from his pen in his eighty-first, the second in his eighty-fifth, and the third in his ninety-first year.

They are auto-biographical records of the diet, drink, and general regimen, which were instrumental in the restoration and maintenance of his health, the protraction of his life, and the exemption from the decrepitude and discomforts of age which he enjoyed, under such an unusual accumulation of years.

The narrative is interspersed and its monotony relieved by numerous reflections of a strong, fresh, and clear-seeing mind. And its style is perspicuous, sprightly, and vigorous.

All these personages I repeat were so vigorous in intellect, and so illustrious when old, only because they were in all things temperate, and never allowed their faculties to take rust and stiffen for want of exercise. Had they ceased to be active observers and thinkers, and become mere eaters, drinkers, and sleepers, as too many men do, at the age of *sixty*, by *seventy* their faculties would have been greatly enfeebled, and they would have been *dotards* by *eighty*—or at an earlier age.

Such, Gentlemen, is the doctrine touching the influence of years on the mental and corporeal condition of man. A brief application of it to practical purposes shall close my address.

And here permit me first to observe, that the *moral* of the doctrine I have ventured to lay down is *so plain*, and its *application so obvi-*

*ous* and *easy*, that it is perhaps even superfluous in me to dwell on them any longer. No one who has heard me attentively can fail I think to have a sufficient understanding of both, and to be able to employ them greatly to his *own* benefit, and, provided he make the attempt, in no small degree to the benefit of others.

I have already alleged that the first six periods, into which human life is divided, can be neither shortened nor protracted by human means. But I have not said that they cannot be greatly improved in comfort and usefulness by them. On the contrary, I now say that they can. And the means are accessible and tractable to every one. They are *TEMPERANCE* and *INDUSTRY*, in the most full and comprehensive signification of the two terms—temperance, including *moral sobriety* and self-command, as well as *moderation* in the indulgence of all the *animal appetites*—and industry embracing every form of salutary and laudable exercise, whether corporeal or mental, but chiefly that which aims steadily at the accomplishment of some given and immediate end. Nor is it too much to say of them, that *temperance* and *industry*, as here defined, do much more than merely contribute to the preservation of health and the attainment of long life. They are the two most effectual *preventives of vice* and promoters of *virtue* and *good conduct*, that nature affords. So indisputable is this, that they and vice of every description, are *absolute incompatibles*, that can no more exist in close and harmonious connexion with each other, than can two bodies which are *positively* electrified—or than any other opposites that can be named or imagined. So thoroughly established is this position, that no well authenticated case can be adduced, in which any individual has been convicted of deep guilt, whose habits were those of strict temperance as heretofore defined, and steady, well-directed, and persevering industry.

Nor, as already intimated, do those two forms of agency minister less to *health of body* than to *soundness of mind*. They are in fact, the two main props and pillars of both, together with all the benefits and blessings which accompany and follow them. So wide and comprehensive is the scope of their action, and so numerous and invaluable the benefactions they confer, that they contribute more—I might say much more to the comfort and happiness, usefulness and respectability of those who possess and duly practise them, than do all other sources of mere sublunary influence of which man can avail himself, or which fancy can conceive. And to enhance their usefulness and value to the highest pitch, they are, as already men-

tioned, within the reach of every one. To the whole human family they are as open and accessible as is the air they breathe, the water that spontaneously descends on them from the heavens, or the sunlight that cheers and directs them in their path.

Were either or all of you, then, to inquire of me, by what means you may rise *with certainty* to eminence as physicians? My reply would be, by temperance in all respects, and unrelaxing steadiness in *professional industry*. But, by this I mean industry in observation, inquiry, and thought, as well as in the technical business of practice. I mean industry of every description that can enlighten and invigorate, purify and elevate the human mind.

Let me not however be understood to say, that, by the pursuit of such a course, all or any of you can become stars of the first magnitude and the highest lustre in the profession of medicine. Equally remote however am I from either the adoption or the assertion of the opposite belief. I can scarcely admit even the possibility that, in the magnificent class I have the gratification to address, there are no members made capable *by nature* of throwing the splendor of their names and achievements in medicine into distant countries and future ages. But to effectuate this, labor and perseverance of the highest order, in making the requisite mental improvement, must unite in the completion of what nature has begun. Nor, by the pursuit of such a course, is it more than *possible* that any one of you can fail to attain, with certainty, to a degree of usefulness and professional rank, which the public will regard with respect and honor, and of which your friends will have reason to be proud.

But you have *social* duties to fulfil, as well as *professional* ones. Do you ask me then, by what scheme of action you may gain high and permanent reputation in *them*?—in the capacity of sons, brothers, husbands, fathers, and citizens of the communities in which you may reside? My answer is the same. By temperance and sobriety, united to an industrious and conscientious discharge of the duties that belong to those several relations.

Nor would my answer be materially different were you to ask me, by what course of action you may acquire pre-eminence and usefulness in any other walk or calling in life? Physical temperance and moral sobriety, accompanied by steady, energetic, and well directed industry will rarely fail to accomplish your purpose in every capacity in which you may appear. And without such means, no high and useful purposes in any sphere of life can ever be achieved. Nor is

this less true in relation to men of exalted abilities, than to those of inferior ones. It is *education* and *discipline* not *nature*, that complete the man of usefulness and worth.

Such are the laws established by the Creator, as part of the dispensation under which we live, to render man the author of his own destiny, and the immediate architect of his own fortune. And such he is, by an immutable decree of the Council of Heaven coeval with his creation. I mean the *creation* of the *human race*—not that of *every individual member* of it. Nor, were the case otherwise could man be justly held accountable for the issue of his deeds. To be, equitably subject to a penalty for doing what is wrong, he must possess both freedom and ability to do what is right. And such is the fortunate condition of each of us. In the sphere, in which we move, we can act with perfect propriety if we please—you, as pupils—I as preceptor. If I fail in the execution of my duty, I am in fault, and so are you, in case you fail in the execution of yours.

But it is your duty to rise in your profession to as elevated a standard of usefulness and distinction as the means at your command may place within your reach. To fall short of this will be in you not merely a *failure*—it will be, in itself, and in all its bearings and influences a serious fault—a fault against yourselves who will be essentially injured by it—against your friends and connexions, who will be disappointed and mortified on your account—against the school which has educated you, toward whose reputation and interests you will be faithless and negligent—against your patients who will suffer by your want of knowledge—against your profession which has a claim on you for all the honors and benefits you can confer on it, by your own elevated standing as a member of it, and all the improvements you can make in it—against your country which is justly entitled to all the renown you can bestow on it, by your talents and attainments—against posterity who have a right to expect from you, as the fruit of your labors, more or less of a legacy of professional knowledge—and against your God, who has endowed you with faculties of body and mind not to be neglected, misapplied, or in any way abused, but to be assiduously employed for your own interest and rational enjoyment, and for the benefit of your fellow-men.

That these considerations will in some degree influence you, in the discharge of your duties both professional and social, furnishes me with matter of hope and belief, which I shall not cease to cherish



unless compelled to their relinquishment, by facts as irresistible as they will be painful and unwelcome to me.

In the name then of all these considerations united, let me intreat you so to employ your time, talents, and advantages, as to fulfil the hopes, and expectations of your friends and acquaintance, receive the approbation and applause of your country, and finally, at the bar of a still higher tribunal, be welcomed to the enjoyment of a consummate and never-ending reward.

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#### NOTE.

The act, in which the intellect of persons advanced in years, *first most frequently, and most troublesomely fails*, is that of *remembrance*—especially the remembrance of *recent* events, and of the names of *persons, places and things*. And I have been frequently asked, by what means that failure may be most certainly *prevented or remedied*? Instead of composing a disquisition, in answer to this inquiry, I shall here simply state the means, which I myself employ, for the purposes of the *prevention and cure* of the evil.

To remember such *recent events*, as are worthy of remembrance, and as I wish to remember, is an act which gives me *no trouble*, or at least so *little*, that I do not account it a trouble. It is to bestow on the events, *at the time of their occurrence*, such a *small* amount of *extra attention* (and a very small one serves my purpose) as I find to be necessary to radicate and fix them in my memory—and I then associate them with something connected with the time and place of their occurrence, which I feel confident that I *cannot forget*—and the work is done. Nor does it occupy, in its performance, more than an almost inappreciable fragment of time. And it is so simple and easy, that *any* and *every* one can fully avail himself of it. By the aid of that momentary process moreover I can re-call to memory recent and remote events, if not with *equal facility*—with a facility closely *approaching equality*.

To secure the remembrance of words, I find the process more complex and less certain. But, with an inconsiderable degree of management and trouble, my success guards me from serious annoyance.

I have discovered, on inquiry, two facts, the proper employment

of which, in suggesting action to me, aids me not a little in my scheme of mnemonics.

There are certain *classes* of words more difficult to be remembered by me than others. And of those classes certain *single* words are most apt to *escape* me. On those difficulties I act, as points of special attention.

I make catalogues, if not of entire classes, of the several words in each class, which are most frequently forgotten by me. The mere act of thus fixing them on paper, contributes its part towards fixing them in my memory. And that influence it is easy to strengthen, by associating them with the *page*, and with the part of it, on which they are written.

Having thus far prepared my means, I often spend a few minutes (and a very few are sufficient,) in glancing over my catalogues, to familiarize myself with their contents, and augment their usefulness.

Another expedient which I have advantageously employed is, to associate words, occasionally forgotten by me, with words beginning with the same syllable, which I never forget.

This form of association every one must make for himself. The reason is plain. Most persons possess some *predominant* faculty or faculties of mind, with the exercise of which they are most pleased, in which they therefore most frequently indulge, and with the terms connected with the occupation to which this leads, being most familiar, they can most easily remember them.

Thus one person is devoted to calculation, or the employment of numbers—another to painting—a third to some form of construction or mechanism—and a fourth to music. And each one most easily remembers the terms most usually employed by him in the course of his business. He will most advantageously therefore employ such terms, in forming his associations in aid of his memory.

By pursuing, with the *requisite attention*, such measures as the preceding, I have experienced, on the score of remembrance, but very little inconvenience, in either science or letters. But without attention—*strict* attention to measures and principles, and a rigid adherence to them *in practice*, they are useless. And, that it may be really and highly useful to him, I am persuaded that every one must be himself the chief architect of his system of mnemonics.

I shall only add, that the practice of this scheme, in aid of my

memory, does not *now* occupy me *an hour by the month*--perhaps not the half of it. While I was reflecting on it and preparing it, I, of course, devoted to it a greater amount of time. But even then I was not, by my attention to it, sensibly abstracted from my usual pursuits. Such is the facility with which, when we seriously and judiciously employ our faculties to that effect, we can mitigate some of the heaviest grievances of life.







